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drawings are not up to the usual standard, especially that set by German writers.

In the discussion of the elements of mineralogy a brief review of the essentials of crystallography is undertaken. It would seem that altogether too much space is given over to the calculation and projection of crystals and not enough emphasis placed upon a mastery of their general morphology. For after all, the petrographer is far more concerned about the general features of crystal form, as revealed in the thin section, than he is about the calculation to the fourth decimal place of the elements of crystallization.

In the chapter on the application of polarized light to crystalline substances the optical behavior and methods of determination of crystals are treated. In too many cases are the phenomena, to be observed, described without any attempt being made to explain them. This is especially the case with the discussion of the formation of uniaxial interference figures. The statement on page 46, "The student must keep in mind the principles of polarization of light as given in Chapter II.," needs to be corrected, as polarization is not at all referred to in the chapter indicated.

Parts two and three are the most important features of the text. The descriptions of the various minerals are in all cases full and include, aside from a discussion of the crystallographic, optical and other physical properties, paragraphs treating inclusions, recurrence, diagnostics and classification. Many figures showing the optical orientation accompany these descriptions. The discussion of the feldspar group is very exhaustive, covering forty-seven pages and including fifty-four figures. The analytical tables are well arranged and usually lead to a rapid and accurate determination of the mineral under consideration.

Although the authors have failed to present the principles and methods of optical mineralogy in a manner which will allow of a ready comprehension by the beginner, they have nevertheless succeeded in making easily accessible the more important data of rock-forming minerals. This feature alone is sufficient to commend the book to the use of

advanced students of petrography and physical crystallography.

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*Gold: Its Geological Occurrence and Geographical Distribution.* By J. MALCOLM MACLAREN, D.Sc. Cloth, 6×10 ins., pp. 687. London, The Mining Journal.

MacLaren's "Gold" is a recent acquisition to a somewhat overworked field of endeavor. The work has been compiled, as such works must needs be, through much painstaking effort extending over a number of years; an important consideration being that a large part of the information presented has been verified by investigations made by the writer which add weight and authority to the statements.

The book is divided into two parts, namely, the General Relations of Auriferous Deposits and the Geographic Distribution of Gold. In the first part is a general discussion of the occurrence of gold, including a general statement regarding the structure of the earth and its relation to ore deposits. There is a brief discussion concerning the zone of fracture, sources of metallic ores and underground waters, filling of fissures, secondary enrichment, etc., but it is doubtful whether they should not have been discussed at greater length or not considered at all.

There is an interesting section devoted to a discussion of the physical and chemical characters of gold, its alloys and natural compounds.

The geological occurrence of auriferous deposits is taken up under the head of Classification of Deposits, which is divided into two groups, the primary and secondary, the occurrence by countries, districts, etc., being considered under these heads. It is needless to say that an attempt to cover the occurrence of gold throughout the world in seventy odd pages is much too big a task to be done comprehensively.

The bulk of the book is devoted to a discussion of the geographical distribution of gold, and while fairly exhaustive leaves much

to be desired from the standpoint of details, and details which are essential to a clear and comprehensive discussion of the localities in which gold is found and its associated minerals.

The book is well written, and while it contains much of interest it is doubtful whether it fills any great and pressing need which is not already occupied by other works. An important and valuable feature is the comparatively large number of references embodied in the text to which the reader may turn for verification of stated facts or to extend his information. Its chief value lies in the fact that the occurrence of gold is given for the whole world and not for some particular country. To those who enter upon the study of precious metals, a keen regret must be experienced in the perusal of such a work, that both of the precious metals, gold and silver, could not have been considered together, owing to their intimate association in ore deposits and their relations to commerce and industry in the world's community. In many respects this work is a valuable addition to the literature on the occurrence of gold, and will be welcomed by many.

WALTER R. CRANE

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SCIENTIFIC JOURNALS AND ARTICLES

THE June number (volume 15, number 1) of the *Bulletin of the American Mathematical Society* contains the following papers: Report of the April meeting of the society, by F. N. Cole; Report of the April meeting of the Chicago section, by H. E. Slaught; "A Set of Criteria for the Summability of Divergent Series," by W. B. Ford; "On Fredholm's Equation," by P. Saurel; "The Chicago Symposium on Mathematics for Engineering Students," review by H. W. Tyler; "Osgood's Calculus," review by C. N. Haskins; "Shorter Notices": Bachmann's *Grundlehren der neuern Zahlentheorie*, by J. W. Young; Whitehead's Axioms of Descriptive Geometry, by F. W. Owens; Jouguet's *Lectures de Mécanique*, and Andoyer's *Cours d'Astronomie*, by W. R. Longley; "Notes"; "New Publications."

The July number (concluding volume 15) of the *Bulletin* contains: "Tautochrones and Brachistochrones," by E. Kasner; "Degenerate Pencils of Quadrics connected with  $\Gamma_{n+4, n}^{n+2}$  Configurations," by W. B. Carver; "On the Use of  $n$ -fold Riemann Spaces in Applied Mathematics," by J. McMahon; "Mathematical Appointments in Colleges and Universities," by E. J. Wilczynski; Picard's Algebraic Functions of Two Variables, review by J. I. Hutchinson; "Shorter Notices": Correspondance d'Hermite et de Stieltjes, by James Pierpont; Scott's *Cartesian Plane Geometry*, Part I., *Analytical Conics*, by E. G. Bill; Hilbert's *Grundlagen der Geometrie*, third edition, by A. R. Schweitzer; Klein-Schimmaek, *Vorträge über den mathematischen Unterricht an den höheren Schulen*, Part I., by J. W. A. Young; "Notes"; "New Publications"; "Eighteenth Annual List of Papers read before the Society and Subsequently Published"; Index of Volume.

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SPECIAL ARTICLES

DIPLODIA DISEASE OF MAIZE (SUSPECTED CAUSE OF PELLAGRA)

FOR about two years the writers have been studying the *Diplodia* disease of corn now serious in some parts of the country, with especial reference to its manner of infection. An examination of a bundle of maize plants sent from the west in 1907 indicated pretty clearly that the infection of the cobs was from within, *i. e.*, from the interior of the stem by way of the root system, and not simply a local attack as hitherto supposed. The mycelium was found in all the inner parts of many stems from roots to cobs and in the interior of the latter, and the kernels were moldy (white).

In February, 1908, pot experiments were started in one of the hothouses to verify this inference, the soil being inoculated with pure cultures of the fungus. On June 2 in one of the pots the *Diplodia* was found fruiting on the roots and at the base of the stem, and the mycelium of the fungus was found in the interior of the root, stem and cob in abun-